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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/042,294

01/11/2002

Shoham Ben-David

BEN-DAVID=1

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02/22/2006

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EXAMINER

GUILL, RUSSELL L

ART UNIT

PAPER NUMBER

2123

DATE MAILED: 02/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/042,294

Applicant(s)

BEN-DAVID, SHOHAM

Examiner

Russell L. Guill

Art Unit

2123

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-51 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-10, 12, 13, 18-28 and 35-45 is/are allowed.
- 6) ☒ Claim(s) 11, 14-17, 29-34 and 46-51 is/are rejected.
- 7) ☒ Claim(s) 1, 5, 9, 22, 26, 39 and 43 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is in response to an Amendment filed December 21, 2005. Claims 1-3, 6, 8, 11, 14-16, 18-20, 23, 25, 28, 31-33, 35-37, 40, 42, 45 and 48-50 were amended. Claims 1 - 51 are pending. Claims 1 - 51 have been examined. Claims 1 - 10, 12 - 13, 18 - 28 and 35 - 45 are allowable. Claims 11, 14, 15, 16, 17, 29, 30, 31, 32, 33, 34, 46, 47, 48, 49, 50, 51 are rejected. Claims 1, 5, 9, 22, 26, 39 and 43 are objected to.

Response to Remarks

2. Regarding objections to the disclosure, Applicants' amendments overcome the objections.
3. Regarding claims 3, 6, 8, 14, 20, 23, 25, 31, 37, 40, 42 and 48 that were objected to for informalities, the Applicants' amendments to the claims overcome the objections.
4. Regarding claims 1, 18, and 35 rejected under 35 USC § 112, first paragraph:
 - a. Applicants' amendments to the claims overcome the rejections.
5. Regarding claims 13, 30, and 47 rejected under 35 USC § 112, first paragraph:
 - a. Applicants' arguments, on page 20, have been fully considered, and are persuasive. Accordingly, the rejections are withdrawn.
6. Regarding claims 11, 28, and 45 rejected under 35 USC § 112, second paragraph:
 - a. Applicants' amendments to the claims overcome the rejections.
7. Regarding claims 1-3, 6-20, 23-37 and 40-51 rejected under 35 USC § 103:
 - a. Applicants' arguments, see pages 21 - 25, have been fully considered and are persuasive. Accordingly, the rejections are withdrawn.

Claim Objections

8. **Claims 1 5, 9, 22, 26, 39 and 43** are objected to because of the following informalities:

- a. Regarding **claim 1**, the claim recites "states of the system." Reference to the previous limitation should remain consistent to avoid any possible confusion or antecedent issues. For the purpose of claim examination, the phrase is interpreted as "states of the hardware system." Appropriate correction is required.
- b. Regarding **claims 5, 22 and 39**, in line 4, the claims recite, "the occurrence". Reference to the previous limitation should remain consistent to avoid any possible confusion or antecedent issues. For the purpose of claim examination, the phrase is interpreted as "occurrence." Correction or amendment is required.
- c. Regarding **claims 9, 26 and 43**, in line 5, the claims recite, "the initial states". Reference to the previous limitation should remain consistent to avoid any possible confusion or antecedent issues. For the purpose of claim examination, the phrase is interpreted as "the at least one initial state." Correction or amendment is required.
- d. Regarding **claims 9, 26 and 43**, in line 9, the claims recite, "the preceding set". Reference to the previous limitation should remain consistent to avoid any possible confusion or antecedent issues. For the purpose of claim examination, the phrase is interpreted as "a preceding set." Correction or amendment is required.
- e. Regarding **claims 9, 26 and 43**, in line 11, the claims recite, "the other sets". Reference to the previous limitation should remain consistent to avoid any possible confusion or antecedent issues. For the purpose of claim examination, the phrase is interpreted as "other sets." Correction or amendment is required.

Claim Rejections - 35 USC § 112

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

a. **Claims 11, 14, 15, 16, 17, 29, 30, 31, 32, 33, 34, 46, 47, 48, 49, 50, 51** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

i. Regarding **claim 11**, in line 3, the claim recites, "the selected states". The term has insufficient antecedent basis. Correction or amendment is required.

ii. Regarding **claim 14**, in line 2, the claim recites, "specifying the path". The term has insufficient antecedent basis. Correction or amendment is required.

iii. Regarding **claims 29 and 46**, in line 3, the claims recite, "the target sets". The term has insufficient antecedent basis. For the purpose of claim examination, the phrase is interpreted as "the target set." Correction or amendment is required.

iv. Regarding **claims 31 and 48**, in line 2, the claims recite, "path specification". The term has insufficient antecedent basis. Correction or amendment is required.

v. **Claims 15, 16, 17, 30, 32, 33, 34, 46, 47, 48, 49, 50, 51** are rejected based on their dependency on their respective intermediate and parent claims which are rejected under 35 U.S.C. 112.

Allowable Subject Matter

10. Claims 1 - 10, 12 - 13, 18 - 28 and 35 - 45 are allowable over the prior art of record.

11. As allowable subject matter has been indicated, applicant's reply must either comply with all formal requirements or specifically traverse each requirement not complied with. See 37 CFR 1.111(b) and MPEP § 707.07(a).

12. Claims 11, 14, 15, 16, 17, 29, 30, 31, 32, 33, 34, 46, 47, 48, 49, 50, 51 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

13. Regarding **claim 1**, while Beer and Bruegge teach a method for checking a model which defines states of a hardware system under study and a transition relation among the states, neither of these references taken either alone or in combination with the prior art of record disclose the aforementioned method for checking a model specifically including providing a specification of a path to be found through the states of the hardware system under study from an initial set that comprises at least one initial state among the states of the system to a target set that comprises at least one target state among the states of the hardware system, such that a specified sequence of events is to occur on the path between the at least one initial state and the at least one target state, beginning from the initial set, computing successive reachable sets comprising the states of the hardware system that are reachable from the initial set along the path, such that in successive reachable sets the events occur in the specified sequence; determining

whether an intersection exists between one of the reachable sets on the path and the target set, and when the intersection is not found to exist, producing a partial trace along the path between the at least one initial state and a termination state in which at least one of the specified events occurs, in combination with the remaining features and elements of the claimed invention. It is for these reasons that the Applicants' invention defines over the prior art of record.

14. Regarding **claim 18**, while Beer and Bruegge teach a model checking apparatus comprising a model processor which is arranged to receive a model that defines states of a hardware system and a transition relation among the states, neither of these references taken either alone or in combination with the prior art of record disclose the aforementioned model checking apparatus specifically including receiving a specification of a path to be found through the states of the hardware system under study from an initial set that comprises at least one initial state among the states of the hardware system to a target set that comprises at least one target state among the states of the hardware system, such that a specified sequence of events is to occur on the path between the at least one initial state and the at least one target state, the processor being further arranged to compute, beginning from the initial set, successive reachable sets comprising the states of the hardware system that are reachable from the initial set along the path, such that in successive reachable sets the events occur in the specified sequence, and to determine whether an intersection exists between one of the reachable sets on the path and the target set, and when the intersection is not found to exist, to produce a partial trace along the path between the at least one initial state and a termination state in which at least one of the specified events occurs, in combination with the remaining features and elements of the claimed invention. It is for these reasons that the Applicants' invention defines over the prior art of record.

15. Regarding **claim 35**, while Beer and Bruegge teach a computer software product comprising a computer-readable medium in which program instructions are stored, which instructions, when read by a computer, cause the computer to receive a model that defines states of a hardware system and a transition relation among the states, neither of these references taken either alone or in combination with the prior art of record disclose the aforementioned computer software product specifically including receiving a specification of a path to be found through the states of the hardware system under study from an initial set that comprises at least one initial state among the states of the hardware system to a target set that comprises at least one target state among the states of the hardware system, such that a specified sequence of events is to occur on the path between the at least one initial state and the at least one target state, and which cause the computer to compute, beginning from the initial set, successive reachable sets comprising the states of the hardware system that are reachable from the initial set along the path, such that in successive reachable sets the events occur in the specified sequence, and to determine whether an intersection exists between one of the reachable sets on the path and the target set, and when the intersection is not found to exist, to produce a partial trace along the path between the at least one initial state and a termination state in which at least one of the specified events occurs, in combination with the remaining features and elements of the claimed invention. It is for these reasons that the Applicants' invention defines over the prior art of record.

Conclusion

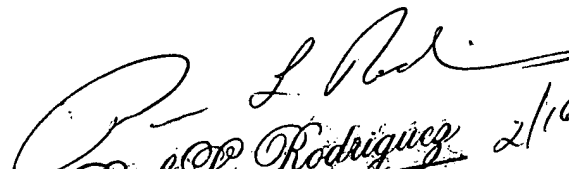
16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Russell L. Guill whose telephone number is 571-272-7955. The examiner can normally be reached on Monday - Friday 10:00 AM - 6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached on 571-272-3749. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Any inquiry of a general nature or relating to the status of this application should be directed to the TC2100 Group Receptionist: 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Russ Guill
Examiner
Art Unit 2123

RG


Paul L. Rodriguez 2/16/06
Primary Examiner
Art Unit 2125